

SEQUENCE LISTING

<110> DAVID M. KOELLE
ZHI LIU
LAWRENCE COREY

<120> RAPID, EFFICIENT PURIFICATION OF
HSV-SPECIFIC T-LYMPHOCYTES AND HSV ANTIGENS IDENTIFIED VIA
SAME

<130> 30967.11USU1

<150> 60/396,791

<151> 2002-07-18

<160> 17

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 9

<212> PRT

<213> Herpes Simplex Virus 2

<400> 1

Asp Arg Leu Asp Asn Arg Leu Gln Leu
1 5

<210> 2

<211> 9

<212> PRT

<213> Herpes Simplex Virus 2

<400> 2

Gly Pro His Glu Thr Ile Thr Ala Leu
1 5

<210> 3

<211> 13

<212> PRT

<213> Herpes Simplex Virus 2

<400> 3

His Ala Ser Pro Phe Glu Arg Val Arg Cys Leu Leu Leu
1 5 10

<210> 4

<211> 9

<212> PRT

<213> Herpes Simplex Virus 2

<400> 4

Ala Ser Asp Ser Leu Asn Asn Glu Tyr
1 5

<210> 5

<211> 9

<212> PRT

<213> Herpes Simplex 2

<400> 5

Arg Arg Ala Gln Met Ala Pro Lys Arg

1

5

<210> 6

<211> 9

<212> PRT

<213> Herpes Simplex 2

<400> 6

Lys Ser Arg Arg Pro Leu Thr Thr Phe

1

5

<210> 7

<211> 296

<212> PRT

<213> Herpes Simplex Virus 2

<400> 7

Met Ala Asp Pro Thr Pro Ala Asp Glu Gly Thr Ala Ala Ala Ile Leu

1

5

10

15

Lys Gln Ala Ile Ala Gly Asp Arg Ser Leu Val Glu Val Ala Glu Gly

20

25

30

Ile Ser Asn Gln Ala Leu Leu Arg Met Ala Cys Glu Val Arg Gln Val

35

40

45

Ser Asp Arg Gln Pro Arg Phe Thr Ala Thr Ser Val Leu Arg Val Asp

50

55

60

Val Thr Pro Arg Gly Arg Leu Arg Phe Val Leu Asp Gly Ser Ser Asp

65

70

75

80

Asp Ala Tyr Val Ala Ser Glu Asp Tyr Phe Lys Arg Cys Gly Asp Gln

85

90

95

Pro Thr Tyr Arg Gly Phe Ala Val Val Leu Thr Ala Asn Glu Asp

100

105

110

His Val His Ser Leu Ala Val Pro Leu Val Leu Leu His Arg Leu

115

120

125

Ser Leu Phe Arg Pro Thr Asp Leu Arg Asp Phe Glu Leu Val Cys Leu

130

135

140

Leu Met Tyr Leu Glu Asn Cys Pro Arg Ser His Ala Thr Pro Ser Leu

145

150

155

160

Phe Val Lys Val Ser Ala Trp Leu Gly Val Val Ala Arg His Ala Ser

165

170

175

Pro Phe Glu Arg Val Arg Cys Leu Leu Arg Ser Cys His Trp Ile

180

185

190

Leu Asn Thr Leu Met Cys Met Ala Gly Val Lys Pro Phe Asp Asp Glu

195

200

205

Leu Val Leu Pro His Trp Tyr Met Ala His Tyr Leu Leu Ala Asn Asn

210

215

220

Pro Pro Pro Val Leu Ser Ala Leu Phe Cys Ala Thr Pro Gln Ser Ser

225

230

235

240

Ala Leu Gln Leu Pro Gly Pro Val Pro Arg Thr Asp Cys Val Ala Tyr

245

250

255

Asn Pro Ala Gly Val Met Gly Ser Cys Trp Asn Ser Lys Asp Leu Arg

260

265

270

Ser Ala Leu Val Tyr Trp Trp Leu Ser Gly Ser Pro Lys Arg Arg Thr

275

280

285

Ser Ser Leu Phe Tyr Arg Phe Cys

290

295

<210> 8

<211> 585

<212> PRT

<213> Herpes Simplex Virus 2

<400> 8

Met Asp Pro Tyr Tyr Pro Phe Asp Ala Leu Asp Val Trp Glu His Arg

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			20					25					30		
Arg	Asp	Phe	Trp	Met	Leu	Pro	Val	Phe	Asn	Ile	Pro	Arg	Glu	Thr	Ala
		35					40					45			
Ala	Glu	Arg	Ala	Ala	Val	Leu	Gln	Ala	Gln	Arg	Thr	Ala	Ala	Ala	Ala
		50					55				60				
Ala	Leu	Glu	Asn	Ala	Ala	Leu	Gln	Ala	Ala	Glu	Leu	Pro	Val	Asp	Ile
65					70					75					80
Glu	Arg	Arg	Ile	Arg	Pro	Ile	Glu	Gln	Gln	Val	His	His	Ile	Ala	Asp
			85						90					95	
Ala	Leu	Glu	Ala	Leu	Glu	Thr	Ala	Ala	Ala	Ala	Glu	Glu	Ala	Ala	Asp
			100					105				110			
Ala	Ala	Arg	Asp	Ala	Glu	Ala	Arg	Gly	Glu	Gly	Ala	Ala	Asp	Gly	Ala
		115					120					125			
Ala	Pro	Ser	Pro	Thr	Ala	Gly	Pro	Ala	Ala	Ala	Glu	Met	Glu	Val	Gln
		130				135					140				
Ile	Val	Arg	Asn	Asp	Pro	Pro	Leu	Arg	Tyr	Asp	Thr	Asn	Leu	Pro	Val
145					150					155					160
Asp	Leu	Leu	His	Met	Val	Tyr	Ala	Gly	Arg	Gly	Ala	Ala	Gly	Ser	Ser
			165						170					175	
Gly	Val	Val	Phe	Gly	Thr	Trp	Tyr	Arg	Thr	Ile	Gln	Glu	Arg	Thr	Ile
			180					185					190		
Ala	Asp	Phe	Pro	Leu	Thr	Thr	Arg	Ser	Ala	Asp	Phe	Arg	Asp	Gly	Arg
		195					200					205			
Met	Ser	Lys	Thr	Phe	Met	Thr	Ala	Leu	Val	Leu	Ser	Leu	Gln	Ser	Cys
		210				215					220				
Gly	Arg	Leu	Tyr	Val	Gly	Gln	Arg	His	Tyr	Ser	Ala	Phe	Glu	Cys	Ala
225					230					235					240
Val	Leu	Cys	Leu	Tyr	Leu	Leu	Tyr	Arg	Thr	Thr	His	Glu	Ser	Ser	Pro
			245						250					255	
Asp	Arg	Asp	Arg	Ala	Pro	Val	Ala	Phe	Gly	Asp	Leu	Leu	Ala	Arg	Leu
			260					265					270		
Pro	Arg	Tyr	Leu	Ala	Arg	Leu	Ala	Ala	Val	Ile	Gly	Asp	Glu	Ser	Gly
		275					280					285			
Arg	Pro	Gln	Tyr	Arg	Tyr	Arg	Asp	Asp	Lys	Leu	Pro	Lys	Ala	Gln	Phe
		290				295					300				
Ala	Ala	Ala	Gly	Gly	Arg	Tyr	Glu	His	Gly	Ala	Leu	Ala	Thr	His	Val
305					310					315					320
Val	Ile	Ala	Thr	Leu	Val	Arg	His	Gly	Val	Leu	Pro	Ala	Ala	Pro	Gly
			325						330					335	
Asp	Val	Pro	Arg	Asp	Thr	Ser	Thr	Arg	Val	Asn	Pro	Asp	Asp	Val	Ala
			340					345					350		
His	Arg	Asp	Asp	Val	Asn	Arg	Ala	Ala	Ala	Ala	Phe	Leu	Ala	Arg	Gly
		355					360								

Asn	Arg	Thr	Arg	Thr	Asn	Thr	Thr	Pro	Val	Gly	Glu	Ile	Ile	Asn	Ala
		515					520					525			
His	Asp	Ala	Leu	Gly	Ile	Gln	Tyr	Glu	Gln	Gly	Pro	Gly	Leu	Leu	Ala
	530					535					540				
Gln	Gln	Ala	Arg	Ile	Gly	Leu	Ala	Ser	Asn	Thr	Lys	Arg	Phe	Ala	Thr
545					550					555					560
Phe	Asn	Val	Gly	Ser	Asp	Tyr	Asp	Leu	Leu	Tyr	Phe	Leu	Cys	Leu	Gly
			565						570					575	
Phe	Ile	Pro	Gln	Tyr	Leu	Ser	Val	Ala							
			580					585							

<210> 9

<211> 637

<212> PRT

<213> Herpes Simplex Virus 2

<400> 9

Met	Ala	Ser	Ala	Glu	Met	Arg	Glu	Arg	Leu	Glu	Ala	Pro	Leu	Pro	Asp
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Arg	Ala	Val	Pro	Ile	Tyr	Val	Ala	Gly	Phe	Leu	Ala	Leu	Tyr	Asp	Ser
			20					25					30		
Gly	Asp	Pro	Gly	Glu	Leu	Ala	Leu	Asp	Pro	Asp	Thr	Val	Arg	Ala	Ala
		35					40					45			
Leu	Pro	Pro	Glu	Asn	Pro	Leu	Pro	Ile	Asn	Val	Asp	His	Arg	Ala	Arg
	50					55					60				
Cys	Glu	Val	Gly	Arg	Val	Leu	Ala	Val	Val	Asn	Asp	Pro	Arg	Gly	Pro
65					70					75					80
Phe	Phe	Val	Gly	Leu	Ile	Ala	Cys	Val	Gln	Leu	Glu	Arg	Val	Leu	Glu
				85					90					95	
Thr	Ala	Ala	Ser	Ala	Ala	Ile	Phe	Glu	Arg	Arg	Gly	Pro	Ala	Leu	Ser
			100					105						110	
Arg	Glu	Glu	Arg	Leu	Leu	Tyr	Leu	Ile	Thr	Asn	Tyr	Leu	Pro	Ser	Val
			115				120						125		
Ser	Leu	Ser	Thr	Lys	Arg	Arg	Gly	Asp	Glu	Val	Pro	Pro	Asp	Arg	Thr
	130					135					140				
Leu	Phe	Ala	His	Val	Ala	Leu	Cys	Ala	Ile	Gly	Arg	Arg	Leu	Gly	Thr
145					150					155					160
Ile	Val	Thr	Tyr	Asp	Thr	Ser	Leu	Asp	Ala	Ala	Ile	Ala	Pro	Phe	Arg
				165					170					175	
His	Leu	Asp	Pro	Ala	Thr	Arg	Glu	Gly	Val	Arg	Arg	Glu	Ala	Ala	Glu
			180					185						190	
Ala	Glu	Leu	Ala	Leu	Ala	Gly	Arg	Thr	Trp	Ala	Pro	Gly	Val	Glu	Ala
			195				200					205			
Leu	Thr	His	Thr	Leu	Leu	Ser	Thr	Ala	Val	Asn	Asn	Met	Met	Leu	Arg
	210					215					220				
Asp	Arg	Trp	Ser	Leu	Val	Ala	Glu	Arg	Arg	Arg	Gln	Ala	Gly	Ile	Ala
225					230					235					240
Gly	His	Thr	Tyr	Leu	Gln	Ala	Ser	Glu	Lys	Phe	Lys	Ile	Trp	Gly	Ala
				245					250					255	
Glu	Ser	Ala	Pro	Ala	Pro	Glu	Arg	Gly	Tyr	Lys	Thr	Gly	Ala	Pro	Gly
			260					265					270		
Ala	Met	Asp	Thr	Ser	Pro	Ala	Ala	Ser	Val	Pro	Ala	Pro	Gln	Val	Ala
		275					280					285			
Val	Arg	Ala	Arg	Gln	Val	Ala	Ser	Ser	Ser	Ser	Ser	Ser	Ser	Phe	Pro
		290				295					300				
Ala	Pro	Ala	Asp	Met	Asn	Pro	Val	Ser	Ala	Ser	Gly	Ala	Pro	Ala	Pro
305					310					315					320
Pro	Pro	Pro	Gly	Asp	Gly	Ser	Tyr	Leu	Trp	Ile	Pro	Ala	Ser	His	Tyr
				325					330					335	
Asn	Gln	Leu	Val	Thr	Gly	Gln	Ser	Ala	Pro	Arg	His	Pro	Pro	Leu	Thr
			340					345						350	
Ala	Cys	Gly	Leu	Pro	Ala	Ala	Gly	Thr	Val	Ala	Tyr	Gly	His	Pro	Gly
		355					360					365			

Ala Gly Pro Ser Pro His Tyr Pro Pro Pro Pro Ala His Pro Tyr Pro
 370 375 380
 Gly Met Leu Phe Ala Gly Pro Ser Pro Leu Glu Ala Gln Ile Ala Ala
 385 390 395 400
 Leu Val Gly Ala Ile Ala Ala Asp Arg Gln Ala Gly Gly Leu Pro Ala
 405 410 415
 Ala Ala Gly Asp His Gly Ile Arg Gly Ser Ala Lys Arg Arg Arg His
 420 425 430
 Glu Val Glu Gln Pro Glu Tyr Asp Cys Gly Arg Asp Glu Pro Asp Arg
 435 440 445
 Asp Phe Pro Tyr Tyr Pro Gly Glu Ala Arg Pro Glu Pro Arg Pro Val
 450 455 460
 Asp Ser Arg Arg Ala Ala Arg Gln Ala Ser Gly Pro His Glu Thr Ile
 465 470 475 480
 Thr Ala Leu Val Gly Ala Val Thr Ser Leu Gln Gln Glu Leu Ala His
 485 490 495
 Met Arg Ala Arg Thr His Ala Pro Tyr Gly Pro Tyr Pro Pro Val Gly
 500 505 510
 Pro Tyr His His Pro His Ala Asp Thr Glu Thr Pro Ala Gln Pro Pro
 515 520 525
 Arg Tyr Pro Ala Lys Ala Val Tyr Leu Pro Pro Pro His Ile Ala Pro
 530 535 540
 Pro Gly Pro Pro Leu Ser Gly Ala Val Pro Pro Ser Tyr Pro Pro
 545 550 555 560
 Val Ala Val Thr Pro Gly Pro Ala Pro Pro Leu His Gln Pro Ser Pro
 565 570 575
 Ala His Ala His Pro Pro Pro Pro Pro Gly Pro Thr Pro Pro Pro
 580 585 590
 Ala Ala Ser Leu Pro Gln Pro Glu Ala Pro Gly Ala Glu Ala Gly Ala
 595 600 605
 Leu Val Asn Ala Ser Ser Ala Ala His Val Asn Val Asp Thr Ala Arg
 610 615 620
 Ala Ala Asp Leu Phe Val Ser Gln Met Met Gly Ser Arg
 625 630 635

<210> 10

<211> 722

<212> PRT

<213> Herpes Simplex Virus 2

<400> 10

Met Gln Arg Arg Ala Arg Gly Ala Ser Ser Leu Arg Leu Ala Arg Cys
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 Leu Thr Pro Ala Asn Leu Ile Arg Gly Ala Asn Ala Gly Val Pro Glu
 20 25 30
 Arg Arg Ile Phe Ala Gly Cys Leu Pro Thr Pro Glu Gly Leu Leu
 35 40 45
 Ser Ala Ala Val Gly Val Leu Arg Gln Arg Ala Asp Asp Leu Gln Pro
 50 55 60
 Ala Phe Leu Thr Gly Ala Asp Arg Ser Val Arg Leu Ala Ala Arg His
 65 70 75 80
 His Asn Thr Val Pro Glu Ser Leu Ile Val Asp Gly Leu Ala Ser Asp
 85 90 95
 Pro His Tyr Asp Tyr Ile Arg His Tyr Ala Ser Ala Ala Lys Gln Ala
 100 105 110
 Leu Gly Glu Val Glu Leu Ser Gly Gly Gln Leu Ser Arg Ala Ile Leu
 115 120 125
 Ala Gln Tyr Trp Lys Tyr Leu Gln Thr Val Val Pro Ser Gly Leu Asp
 130 135 140
 Ile Pro Asp Asp Pro Ala Gly Asp Cys Asp Pro Ser Leu His Val Leu
 145 150 155 160
 Leu Arg Pro Thr Leu Leu Pro Lys Leu Leu Val Arg Ala Pro Phe Lys
 165 170 175

Ser	Gly	Ala	Ala	Ala	Ala	Lys	Tyr	Ala	Ala	Ala	Val	Ala	Gly	Leu	Arg	180	185	190
Asp	Ala	Ala	His	Arg	Leu	Gln	Gln	Tyr	Met	Phe	Phe	Met	Arg	Pro	Ala	195	200	205
Asp	Pro	Ser	Arg	Pro	Ser	Thr	Asp	Thr	Ala	Leu	Arg	Leu	Ser	Glu	Leu	210	215	220
Leu	Ala	Tyr	Val	Ser	Val	Leu	Tyr	His	Trp	Ala	Ser	Trp	Met	Leu	Trp	225	230	235
Thr	Ala	Asp	Lys	Tyr	Val	Cys	Arg	Arg	Leu	Gly	Pro	Ala	Asp	Arg	Arg	245	250	255
Phe	Val	Ala	Leu	Ser	Gly	Ser	Leu	Glu	Ala	Pro	Ala	Glu	Thr	Phe	Ala	260	265	270
Arg	His	Leu	Asp	Arg	Gly	Pro	Ser	Gly	Thr	Thr	Gly	Ser	Met	Gln	Cys	275	280	285
Met	Ala	Leu	Arg	Ala	Ala	Val	Ser	Asp	Val	Leu	Gly	His	Leu	Thr	Arg	290	295	300
Leu	Ala	His	Leu	Trp	Glu	Thr	Gly	Lys	Arg	Ser	Gly	Gly	Thr	Tyr	Gly	305	310	315
Ile	Val	Asp	Ala	Ile	Val	Ser	Thr	Val	Glu	Val	Leu	Ser	Ile	Val	His	325	330	335
His	His	Ala	Gln	Tyr	Ile	Ile	Asn	Ala	Thr	Leu	Thr	Gly	Tyr	Val	Val	340	345	350
Trp	Ala	Ser	Asp	Ser	Leu	Asn	Asn	Glu	Tyr	Leu	Thr	Ala	Ala	Val	Asp	355	360	365
Ser	Gln	Glu	Arg	Phe	Cys	Arg	Thr	Ala	Ala	Pro	Leu	Phe	Pro	Thr	Met	370	375	380
Thr	Ala	Pro	Ser	Trp	Ala	Arg	Met	Glu	Leu	Ser	Ile	Lys	Ser	Trp	Phe	385	390	395
Gly	Ala	Ala	Leu	Ala	Pro	Asp	Leu	Leu	Arg	Ser	Gly	Thr	Pro	Ser	Pro	405	410	415
His	Tyr	Glu	Ser	Ile	Leu	Arg	Leu	Ala	Ala	Ser	Gly	Pro	Pro	Gly	Gly	420	425	430
Arg	Gly	Ala	Val	Gly	Gly	Ser	Cys	Arg	Asp	Lys	Ile	Gln	Arg	Thr	Arg	435	440	445
Arg	Asp	Asn	Ala	Pro	Pro	Pro	Leu	Pro	Arg	Ala	Arg	Pro	His	Ser	Thr	450	455	460
Pro	Ala	Ala	Pro	Arg	Arg	Cys	Arg	Arg	His	Arg	Glu	Asp	Leu	Pro	Glu	465	470	475
Pro	Pro	His	Val	Asp	Ala	Ala	Asp	Arg	Gly	Pro	Glu	Pro	Cys	Ala	Gly	485	490	495
Arg	Pro	Ala	Thr	Tyr	Tyr	Thr	His	Met	Ala	Gly	Ala	Pro	Pro	Arg	Leu	500	505	510
Pro	Pro	Arg	Asn	Pro	Ala	Pro	Pro	Glu	Gln	Arg	Pro	Ala	Ala	Ala	Ala	515	520	525
Arg	Pro	Leu	Ala	Ala	Gln	Arg	Glu	Ala	Ala	Gly	Val	Tyr	Asp	Ala	Val	530	535	540
Arg	Thr	Trp	Gly	Pro	Asp	Ala	Glu	Ala	Glu	Pro	Asp	Gln	Met	Glu	Asn	545	550	555
Thr	Tyr	Leu	Leu	Pro	Asp	Asp	Asp	Ala	Ala	Met	Pro	Ala	Gly	Val	Gly	565	570	575
Leu	Gly	Ala	Thr	Pro	Ala	Ala	Asp	Thr	Thr	Ala	Ala	Ala	Ala	Trp	Pro	580	585	590
Ala	Glu	Ser	His	Ala	Pro	Arg	Ala	Pro	Ser	Glu	Asp	Ala	Asp	Ser	Ile	595	600	605
Tyr	Glu	Ser	Val	Gly	Glu	Asp	Gly	Gly	Arg	Val	Tyr	Glu	Glu	Ile	Pro	610	615	620
Trp	Val	Arg	Val	Tyr	Glu	Asn	Ile	Cys	Pro	Arg	Arg	Arg	Leu	Ala	Gly	625	630	635
Gly	Ala	Ala	Leu	Pro	Gly	Asp	Ala	Pro	Asp	Ser	Pro	Tyr	Ile	Glu	Ala	645	650	655
Glu	Asn	Pro	Leu	Tyr	Asp	Trp	Gly	Gly	Ser	Ala	Leu	Phe	Ser	Pro	Arg	660	665	670
Arg	Ala	Thr	Arg	Ala	Pro	Asp	Pro	Gly	Leu	Ser	Leu	Ser	Pro	Met	Pro			

675	680	685
Ala Arg Pro Arg Thr Asn	Ala Leu Ala Asn Asp Gly	Pro Thr Asn Val
690	695	700
Ala Ala Leu Ser Ala Leu	Leu Thr Lys Leu Lys Arg Gly	Arg His Gln
705	710	715
Ser His		720

<210> 11
 <211> 393
 <212> PRT
 <213> Herpes Simplex Virus 2

<400> 11

Met Gly Arg Leu Thr Ser Gly Val Gly Thr Ala Ala Leu Leu Val Val	
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Ala Val Gly Leu Arg Val Val Cys Ala Lys Tyr Ala Leu Ala Asp Pro	
20 25 30	
Ser Leu Lys Met Ala Asp Pro Asn Arg Phe Arg Gly Lys Asn Leu Pro	
35 40 45	
Val Leu Asp Gln Leu Thr Asp Pro Pro Gly Val Lys Arg Val Tyr His	
50 55 60	
Ile Gln Pro Ser Leu Glu Asp Pro Phe Gln Pro Ser Ile Pro Ile	
65 70 75 80	
Thr Val Tyr Tyr Ala Val Leu Glu Arg Ala Cys Arg Ser Val Leu Leu	
85 90 95	
His Ala Pro Ser Glu Ala Pro Gln Ile Val Arg Gly Ala Ser Asp Glu	
100 105 110	
Ala Arg Lys His Thr Tyr Asn Leu Thr Ile Ala Trp Tyr Arg Met Gly	
115 120 125	
Asp Asn Cys Ala Ile Pro Ile Thr Val Met Glu Tyr Thr Glu Cys Pro	
130 135 140	
Tyr Asn Lys Ser Leu Gly Val Cys Pro Ile Arg Thr Gln Pro Arg Trp	
145 150 155 160	
Ser Tyr Tyr Asp Ser Phe Ser Ala Val Ser Glu Asp Asn Leu Gly Phe	
165 170 175	
Leu Met His Ala Pro Ala Phe Glu Thr Ala Gly Thr Tyr Leu Arg Leu	
180 185 190	
Val Lys Ile Asn Asp Trp Thr Glu Ile Thr Gln Phe Ile Leu Glu His	
195 200 205	
Arg Ala Arg Ala Ser Cys Lys Tyr Ala Leu Pro Leu Arg Ile Pro Pro	
210 215 220	
Ala Ala Cys Leu Thr Ser Lys Ala Tyr Gln Gln Gly Val Thr Val Asp	
225 230 235 240	
Ser Ile Gly Met Leu Pro Arg Phe Ile Pro Glu Asn Gln Arg Thr Val	
245 250 255	
Ala Leu Tyr Ser Leu Lys Ile Ala Gly Trp His Gly Pro Lys Pro Pro	
260 265 270	
Tyr Thr Ser Thr Leu Leu Pro Pro Glu Leu Ser Asp Thr Thr Asn Ala	
275 280 285	
Thr Gln Pro Glu Leu Val Pro Glu Asp Pro Glu Asp Ser Ala Leu Leu	
290 295 300	
Glu Asp Pro Ala Gly Thr Val Ser Ser Gln Ile Pro Pro Asn Trp His	
305 310 315 320	
Ile Pro Ser Ile Gln Asp Val Ala Pro His His Ala Pro Ala Ala Pro	
325 330 335	
Ser Asn Pro Gly Leu Ile Ile Gly Ala Leu Ala Gly Ser Thr Leu Ala	
340 345 350	
Val Leu Val Ile Gly Gly Ile Ala Phe Trp Val Arg Arg Arg Ala Gln	
355 360 365	
Met Ala Pro Lys Arg Leu Arg Leu Pro His Ile Arg Asp Asp Ala	
370 375 380	
Pro Pro Ser His Gln Pro Leu Phe Tyr	

<210> 12

<211> 545

<212> PRT

<213> Herpes Simplex Virus 2

<400> 12

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Met Ala Arg Gly Ala Gly Leu Val Phe Phe Val Gly Val Trp Val Val
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          20          25          30
Gly Glu Asp Val Val Leu Leu Pro Ala Pro Ala Glu Arg Thr Arg Ala
          35          40          45
His Lys Leu Leu Trp Ala Ala Glu Pro Leu Asp Ala Cys Gly Pro Leu
          50          55          60
Arg Pro Ser Trp Val Ala Leu Trp Pro Pro Arg Arg Val Leu Glu Thr
          65          70          75          80
Val Val Asp Ala Ala Cys Met Arg Ala Pro Glu Pro Leu Ala Ile Ala
          85          90          95
Tyr Ser Pro Pro Phe Pro Ala Gly Asp Glu Gly Leu Tyr Ser Glu Leu
          100          105          110
Ala Trp Arg Asp Arg Val Ala Val Val Asn Glu Ser Leu Val Ile Tyr
          115          120          125
Gly Ala Leu Glu Thr Asp Ser Gly Leu Tyr Thr Leu Ser Val Val Gly
          130          135          140
Leu Ser Asp Glu Ala Arg Gln Val Ala Ser Val Val Leu Val Val Glu
          145          150          155          160
Pro Ala Pro Val Pro Thr Pro Thr Pro Asp Asp Tyr Asp Glu Glu Asp
          165          170          175
Asp Ala Gly Val Thr Asn Ala Arg Arg Ser Ala Phe Pro Pro Gln Pro
          180          185          190
Pro Pro Arg Arg Pro Pro Val Ala Pro Pro Thr His Pro Arg Val Ile
          195          200          205
Pro Glu Val Ser His Val Arg Gly Val Thr Val His Met Glu Thr Leu
          210          215          220
Glu Ala Ile Leu Phe Ala Pro Gly Glu Thr Phe Gly Thr Asn Val Ser
          225          230          235          240
Ile His Ala Ile Ala His Asp Asp Gly Pro Tyr Ala Met Asp Val Val
          245          250          255
Trp Met Arg Phe Asp Val Pro Ser Ser Cys Ala Asp Met Arg Ile Tyr
          260          265          270
Glu Ala Cys Leu Tyr His Pro Gln Leu Pro Glu Cys Leu Ser Pro Ala
          275          280          285
Asp Ala Pro Cys Ala Val Ser Ser Trp Ala Tyr Arg Leu Ala Val Arg
          290          295          300
Ser Tyr Ala Gly Cys Ser Arg Thr Thr Pro Pro Pro Arg Cys Phe Ala
          305          310          315          320
Glu Ala Arg Met Glu Pro Val Pro Gly Leu Ala Trp Leu Ala Ser Thr
          325          330          335
Val Asn Leu Glu Phe Gln His Ala Ser Pro Gln His Ala Gly Leu Tyr
          340          345          350
Leu Cys Val Val Tyr Val Asp Asp His Ile His Ala Trp Gly His Met
          355          360          365
Thr Ile Ser Thr Ala Ala Gln Tyr Arg Asn Ala Val Val Glu Gln His
          370          375          380
Leu Pro Gln Arg Gln Pro Glu Pro Val Glu Pro Thr Arg Pro His Val
          385          390          395          400
Arg Ala Pro His Pro Ala Pro Ser Ala Arg Gly Pro Leu Arg Leu Gly
          405          410          415
Ala Val Leu Gly Ala Ala Leu Leu Leu Ala Ala Leu Gly Leu Ser Ala
          420          425          430
Trp Ala Cys Met Thr Cys Trp Arg Arg Arg Ser Trp Arg Ala Val Lys

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435 440 445
 Ser Arg Ala Ser Ala Thr Gly Pro Thr Tyr Ile Arg Val Ala Asp Ser
 450 455 460
 Glu Leu Tyr Ala Asp Trp Ser Ser Asp Ser Glu Gly Glu Arg Asp Gly
 465 470 475 480
 Ser Leu Trp Gln Asp Pro Pro Glu Arg Pro Asp Ser Pro Ser Thr Asn
 485 490 495
 Gly Ser Gly Phe Glu Ile Leu Ser Pro Thr Ala Pro Ser Val Tyr Pro
 500 505 510
 His Ser Glu Gly Arg Lys Ser Arg Arg Pro Leu Thr Thr Phe Gly Ser
 515 520 525
 Gly Ser Pro Gly Arg Arg His Ser Gln Ala Ser Tyr Pro Ser Val Leu
 530 535 540
 Trp
 545

<210> 13
 <211> 9
 <212> PRT
 <213> Cytomegalovirus

<400> 13
 Asn Leu Val Pro Met Val Ala Thr Val
 1 5

<210> 14
 <211> 29
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer

<400> 14
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29

<210> 15
 <211> 29
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer

<400> 15
 gactctagag cgaccgttac cctgaaata

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<210> 16
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 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer

<400> 16
 gactctagag acgaggaaag gggtggt

27

<210> 17
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 <212> DNA
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<220>

<223> Primer

<400> 17

gacaagcttc cgctcctctg ggtacttta

29